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# Congenital Heart Disease

## LEFT VENTRICULAR DYSFUNCTION FOLLOWING NEONATAL PULMONARY VALVE BALLOON DILATION FOR PULMONARY ATRESIA OR CRITICAL PULMONARY STENOSIS

Poster Contributions
Hall C
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**Background:** Pulmonary valve (PV) balloon dilation (BD) is the primary therapy for infants born with critical pulmonary stenosis or membranous pulmonary atresia with intact ventricular septum (PAIVS). We have observed left ventricular (LV) dysfunction in patients following BD, and sought to determine its incidence, clinical course and associated risk factors.

**Methods:** Clinical, echocardiographic and catheterization data for all patients who underwent neonatal (<2 weeks age) PV BD for critical pulmonary stenosis or PAIVS between January 2000 and September 2013 were retrospectively analyzed (n=127). Post-procedure LV dysfunction was defined as an ejection fraction (EF) <54%.

**Results:** Median age at PV BD was 1 day. Most (71%) patients had critical PS. Median PV diameter pre-BD was 6.0mm with PV z-scores -4.1 to 0.9, median LV EF pre BD was 58%. Post-BD LV dysfunction developed in 44 pts (35%); 14 patients had LV EF ≤40%. Median time course to normalization of LV EF was 10 days (range 3-72 days) in those with serial echo follow-up. Acute procedural complications, all right ventricular outflow tract perforations, occurred in 7 patients (5.5%), all were managed medically. In univariate analysis, diagnosis type (critical pulmonary stenosis or PAIVS), right ventricle to LV pressure ratio pre-BD, acute procedural complication and post BD inotropic support were not associated with post BD LV dysfunction. In multivariable analysis, the only statistically significant predictors of post-procedure LV dysfunction were lower PV z-score (median -2.1 vs. -1.6, p 0.005) and larger tricuspid valve lateral dimension z-score (median 1.0 vs. 0.1, p 0.01), with a trend towards lower pre-dilation right ventricular pressure in those with post LV dysfunction (94 vs. 105 mmHg, p 0.09).

**Conclusion:** LV dysfunction post neonatal PV BD develops in a significant number of patients (35%) and can be severe, but appears to resolve in short term. The risk for developing LV dysfunction post PV BD is highest in patients with smaller PV z-scores and larger tricuspid valve z-scores. While further study is necessary, this may be related to increased potential for ventricular-ventricular interaction in those with larger right ventricles.